

## NOTES ON THE PUPA OF CETA FLORIDANA.

## PLATE VI.

BY T. A. CHAPMAN, M. D.

Length, 13 millimeters; width,  $2\frac{1}{2}$  millimeters. Tolerably uniform width to the fourth abdominal segment, thence tapering finally to extremity.

*Color.*—Deep sepia, nearly black. A pale nankeen coloring in a broad dorsal stripe, along all the abdominal segments, extending outwards as far as the anterior trapezoidal tubercles, and having a narrow double line of the dark sepia or black color down its centre; traces of a similar coloring in a narrow supra and another infra-spiracular line.

The same color surrounds the marginal tubercles and at pitted markings in the situation of the third and fourth ventral prolegs.

Similar color on the front of the headpiece and a narrow line on each side of the prothorax and a broad patch in the centre of the mesothorax, ventral line of fifth and sixth abdominal segments also paler.

*Dehiscence* is by complete removal of front headpiece, by splitting down the back of the prothoracic segment and two-thirds of the mesothoracic.

The antennæ separate from wings two-thirds of the way down and slightly from leg cases which also open a little at anterior ends; they remain attached together below and also to wings; eye pieces remain in situ.

The two portions of prothorax somewhat separated from mesothorax, but attached by delicate membrane, and show fine radiating structure of first spiracle. (Plate VI, Fig. 3.)

*Structure.*—There is no posterior headpiece; the separated front piece is roughly hexagonal, the two sides being hollowed to receive the ends of the antennæ; and in the pale area here there are on each side two spines or hairs (antennæ-basal hairs?), the inner one curled at the ends into a circle and a-half. In face piece the central portion above has three hair points on each side and terminates in a rounded projection (labrum); beneath from each side are two rounded lappets (mandibles); these occupy about the central third of the face (Plate VI, Fig. 1); at the summit of the first pair of legs between the eyes and antennæ is a small separate portion (max. palp.). The maxillæ, second legs and antennæ reach to the extremity of the wings close to the hind margin of the fourth abdominal segment, to which they are fixed.

The maxillæ just fall short sufficient to show the extremities of the third pair of legs.

The first pair of legs extends two-thirds of the way down, and between these and the maxillæ, extending one-third of the way down from nearly the top of the maxilla, is a piece (first femur) jointed in the centre. The second leg has a small facet against the maxillary palp, cutting off the first entirely from the antennæ.

Each prothoracic portion has two hair points some distance apart; the two on the mesothorax are close together.

The metathorax appears to have two pairs on each side. The hind wings do not disappear under the fore wings till they have reached the fourth abdominal segment; they present a well marked Poulton's line; this is also very well marked along the extremity of the forewing.

The first four abdominal segments are fixed; the spiracles of the second and third find room by slightly indenting the wings.

The fifth and sixth segments are free. On the second and following abdominal segments is an anterior trapezoidal and a supraspiracular hair; also a prespiracular hair; and on the fourth and following a subspiracular hair. A posterior trapezoidal is nowhere determined distinctly; but above and behind the spiracles is a small pale area with three small circular lacunæ. The abdominal spiracles project as pale truncate cones.

The last segment terminates in a conical spine apparently with an elaborate armament, and has several fine hooks round its base and some hair-like spines in the anal region; but it is impossible to clear this of silk sufficiently to make sure of anything.

The whole surface of the pupa is marked by transverse lines or sulci waved and with fine branches running into the intermediate areas (Plate VI, Fig. 7), reminding one, especially on the wings, and probably similar in structure to the sulci between cerebral convolutions; these vary very much over different parts of the pupa; on the centre of the wing, for instance, forming a vortex like the ridges of the tip of the finger. On portions of the abdominal segments the fainter markings are disposed more like the folds in a cushion where it is upholstered. These folds are very beautiful on the antennæ, but here and elsewhere are too complicated for a detailed description. The claws (Plate VI, Fig. 2) on the true legs of the larva are remarkably long and narrow, the same length, and one-fourth the width of the preceding joint; this appearance is emphasized by this joint being of very uniform width and squarely truncated at its distal extremity. The pupal nerva-

tion of the wings is indicated by paler lines. Along the inner margin of the upper wings for quite the basal half is a narrow strip almost free from surface markings; this is, however, delusive, being really the surface of hard chitin of the upper wings which touches the lower one.

NOTE.—Dr. Chapman writes: "It belongs to my section, *Pyraloids*, which have obtect structure in practically all respects except the possession of traces of maxillary palps. I should be inclined to place it somewhere near *Yponomeutidæ*." The anal hooks were accidentally destroyed in the specimen that I sent to Dr. Chapman. The cremaster is a long, thick and wide projection with four hooks at the end (Plate VI, Figs. 4, 5 and 6). There is also a row of hooks at the base running around the anal aperture, and a series of stiff spines further forward, as shown in the figures.

*Ceta aurea* was originally described by Fitch as a Lithosian; Riley placed it with the Tineids at first, later with the *Zygænidæ*; Smith put it in the *Heterogynidæ* in the list of 1891, but in the addendum Walsingham's opinion is quoted that the moth belongs to the *Tineidæ*, thus reverting to the original position given by Fabricius. The larva is a true Tineid. (See the description in March number of this JOURNAL.)

H. G. DYAR.

#### EXPLANATION OF PLATE VI.

Fig. 1. Leg cases, etc., of pupa; M., mandible; m. p., maxillary palpus; mx., maxilla; 1t., anterior trochanter; 1f., anterior femur; 1., first leg; 2l., second leg; 3l., third leg; a., antenna.

Fig. 2. Claw of larva.

" 3. Anterior (prothoracic) spiracle.

" 4. End of pupa, ventral view.

" 5. End of pupa, dorsal view.

" 6. End of pupa, lateral view.

" 7. Sculpturing of pupa shell.